Message from the Editor

The weather bureau is predicting drier than normal conditions in the tropics for September and October. Most of the Territory has a 75% chance of 2-25mm of rainfall.

While lower rainfall is good for the mango harvest, the situation may put pressure on pasture resources and increase the demand for hay.

Cheers from the Editor,

Arthur
Introduction from the New CEO of NT Farmers

My name is Shenal and it gives me great pleasure to introduce myself to you as the new CEO of NT Farmers. I am delighted to be back here in the Northern Territory after a number of years away working in Northern Queensland. I recall the time I worked at the Darwin Port Corporation as the opportunity that helped lay the foundation for my career. To be back in the NT working to build a prosperous future for northern agriculture is the best way that I can continue contributing to the northern development agenda.

As a professional I have spent my time in the tertiary education, shipping, port and regional development sectors. I have worked in both urban and rural locations in Australia spending the last seven years in northern Australia, across the Northern Territory and Northern Queensland. I have spent a considerable amount of time supporting the organic and new growth of the agriculture sector in Northern Queensland, particularly through advocating for infrastructure and policy priorities that are crucial for sustainable growth. I have experience running my own business as well as working for a large multi-national, local and state governments in senior positions. I have worked overseas in Sri Lanka, Singapore and Japan with business experience in several other parts of Asia, the Middle East and Europe. All of these experiences and skills gathered along the way have helped me build a strong foundation in the stakeholder engagement, policy, business development and programme management spaces which I believe are crucial to driving the future developments planned for NT Farmers and the agriculture sector in the NT.

The Northern Territory is currently the strongest performing economy in Australia. This was not achieved by pure luck, but by the dedication and hard work of all those you see around you. I believe that the future for agriculture in the NT is bright and what is already a valuable contributor to the health of the NT’s economy will have an increasingly greater role to play in helping the NT achieve ongoing growth. During the early stages of my discussions with NT Farmers around this role, I started looking at some of the key statistics and reports around the regions agriculture sector and the challenges it faces. It soon became apparent that there are many challenges that needed to be addressed and quickly, but also the many examples of success and opportunity that needed to be embraced and celebrated. The current threat posed by breaches to our biosecurity, the need for ongoing improvements to our water, energy, communications and transport infrastructure, land tenure, native title, farm management practices, access to new markets, foreign investment, to name a few are areas of focus for both NT Farmers and me over the coming months. In addition the opportunities presented through the recent release of documents such as the Agricultural Competitiveness White Paper and the White Paper on Developing Northern Australia need to be harnessed.

Over the coming months members will see and hear from me as I aim to meet, listen and work with them. NT Farmers members will also have the opportunity to hear about the new NT Farmers strategic plan and how they will be party to contributing to its success. For those who have already been involved in this process I thank you for your time and insights. I believe that a successful organisation is one that evolves with the times and creates a positive culture around its employees and members. The new strategic plan will see us become a more focused and responsive organisation. As a member-based organisation it is crucial that we engage, understand and respond to the issues raised by our members and stakeholders, you can trust me when I say that we are here for you.

NT Farmers has a strong brand and presence within the NT which I will be taking onto the national and international stages. This enables us to showcase our achievements and opportunities as well as help build strategic partnerships that benefit our members and the growth of our industry. I firmly believe in the power of partnerships and being engaged with as many strategic stakeholders as possible, being informed and using this information to influence positive outcomes for our members.

I look forward to meeting with you shortly and thank you in advance for entrusting me with the opportunity to represent you. In the words of Henry Ford:

‘Coming together is the beginning, keeping together is progress, working together is success’

Shenal Basnayake
Date Claimer: Pasture Grass Field Day

The Department will be conducting a pasture grass field day at Katherine Research Station on Thursday 12 November 2015.

The results of the Action on the Ground work on nitrogen fertiliser efficiency and nitrous oxide emissions will be presented.

First year results from the irrigated Cool Season Grass trial at Coastal Plains Research Farm will also be presented.

Details of times and agenda items will be circulated in October.
Pastoral Industry Diversification

Arthur Cameron, Principal Pastures Agronomist, Darwin

There is currently considerable interest in diversification on Pastoral properties in the Northern Territory. There is a wide range of possibilities for diversification, ranging from rain grown hay areas, through irrigated hay production to old crops such as rice and a range of new cropping options, including Chia and Opium poppies. There is also a spectrum of horticulture options from annual cropping of melons to perennial tree cropping of mangoes.

Since the restructure of DPIF last year, the Department has a Plant Industries Development Group dedicated to pastoral industry diversification.

Current examples of pastoral industry diversification include irrigated pasture grasses grown under a centre pivot for hay at Neutral Junction Station, rice for stockfeed grown at Mount Keppler Station and Opium poppies grown for pharmaceutical inputs in the Douglas Daly region.
Mango Grafting at Berrimah

Teagan Alexander, Technical Officer, Katherine

Over the dry season a number of team members from the Katherine Plant Industries Development Group travelled to the Berrimah Agricultural Research Centre to take part in the grafting of nearly 300 Kensington Pride mango trees. Marije ten Napel, Ali Sarkhosh and Teagan Alexander along with Darwin-based staff Tony Asis, Paige Richter and Chris Kuo all learnt to graft under the guidance of Chris Kelly.

The process of grafting involves joining mature parent wood to a rootstock seedling so they will fuse and function as one plant. This will produce a plant that is identical to the parent wood. Other advantages include disease resistance, inducing earlier maturity and triggering vigour or dwarfing. There are many different techniques for grafting, and a simple wedge graft in mango trees is relatively easy to learn.

Overall there was a 76% success rate in grafts taking. It was a great day for all learning new skills and spending time with our Darwin/Katherine counterparts.

The successfully grafted trees will be used for the nitrogen management project which is aiming to quantify the uptake, cycling and mobilisation of nitrogen at different growth stages in mango trees. The study will be conducted at the Coastal Plains Research Farm.

More information on the principles of grafting and how to perform different grafts is contained in the document “New Grafting Techniques for Exotic Fruit Trees” produced by the Department of Primary Industry and Fisheries. This document is found in the Technical Publications section of the DPIF website, or can be accessed immediately at http://www.nt.gov.au/d/Content/File/p/Tech_Bull/TB194.pdf
Reducing Nitrous Oxide Emissions when Fertilising Hay Crops with Nitrogen Fertiliser

Paige Richter, Technical Officer, and Mila Bristow, Senior Research Officer, Darwin

There has been increased global awareness of greenhouse gas emissions from agricultural systems in recent decades. Greenhouse gases, such as carbon dioxide, methane and nitrous oxide, trap solar radiation in the upper atmosphere, warming the Earth in a similar way to how a greenhouse traps heat under glass. This is driving global warming. Reducing nitrous oxide emissions is a key concern for the Department of Primary Industry and Fisheries (DPIF) as they have almost 300 times more warming potential than carbon dioxide emissions.

It is common practice in the NT to apply nitrogen fertiliser to grass hay crops. Plants do not use all of the applied nitrogen, with some being lost from the cropping system. Nitrogen movement through cropping systems is dynamic and it can be lost in many forms, one being nitrous oxide. This represents wasted money for farmers.

DPIF’s project “Reducing Greenhouse Gas Emissions through Improved Nitrogen Management on NT Farms” quantified nitrous oxide emissions from hay crops and tested the potential of enhanced efficiency fertilisers to reduce emissions. Enhanced efficiency fertilisers contain nitrification inhibitors that are designed to suppress soil microbes that convert the nitrogen in fertilisers to other forms, including nitrous oxide. When nitrification inhibitors are applied with urea, they slow the conversion of ammonium to nitrate, which reduces the loss of nitrous oxide to the atmosphere and leaves more nitrogen available for plant uptake. The impact of a legume crop to supply organic nitrogen to the soil when grown in rotation with hay was also measured. In each trial, the effects on crop yield, hay quality, nitrogen utilisation and soil nitrous oxide emissions were measured.

The project covered three wet seasons: 2012-13, 2013-14 and 2014-15. The first two years focused on Sabi grass (*Urochloa mosambicensis*) at Katherine Research Station and the third year on Jarra grass (*Digitaria milanjiana*) at a commercial property in the Douglas Daly region.

Sabi grass at Katherine Research Station
The enhanced efficiency fertiliser ‘Urea with ENTEC®’ was tested. ENTEC® is a nitrification inhibitor containing the active ingredient 3,4-dimethyl pyrazole phosphate (commonly known as DMPP). The nitrification inhibitor Nitrapyrin was also tested, as a surface foliar spray. Nitrapyrin is available as a liquid concentrate for application as a diluted solution concurrent with fertiliser use.

These treatments were applied at various rates and compared with the same rates of regular urea fertiliser and an untreated control. In the second year, the trial was preceded by a year's crop of the legume Cavalcade (Centrosema pascuorum) to determine the effect of the residual organic nitrogen in the soil on crop production.

The trial found that, compared with regular urea use at equivalent rates, ENTEC® fertiliser had 61% less nitrous oxide emissions than normal urea in the first year and 25% less in both the second and third years. Nitrapyrin was less effective, reducing emissions by only 19%.

Hay quality and production did not differ across fertiliser treatments. Statistical analysis showed no significant differences in yields. The average yield of dry hay/ha for urea was 10 t, compared with 8.6 t for ENTEC® and 7 t for Nitrapyrin. Conventional urea fertiliser was more economical than ENTEC® and Nitrapyrin at the same rates, but had greater nitrous oxide losses. Applied at 80 kg/ha in the first year, urea cost $55.20/ha, whereas ENTEC® and Nitrapyrin cost $73.60 and $87.70/ha, respectively.

In the second year the amount of organic nitrogen supplied to the soil following a one-year Cavalcade pasture was adequate for the production of a Sabi grass hay crop. There were no significant differences in average yield between the control and the ENTEC® treatments, applied at 80 kg/ha. They produced 8.3 t and 9.4 t dry hay/ha, respectively. This suggests that adding fertiliser following a legume crop is not economically justified. Future trials will explore this further.

This project found that enhanced efficiency fertilisers can minimise atmospheric losses of fertiliser and reduce nitrous oxide emissions whilst maintaining hay production. However, the cost of the fertiliser compared with urea currently makes it economically viable.

DPIF now has valuable data as a benchmark for future studies on enhancing nitrogen utilisation and reducing nitrous oxide emissions in hay crops in the NT.

ACKNOWLEDGEMENT
This project was funded by DPIF and the Australian Department of Agriculture, Fisheries and Forestry, Carbon Farming Futures – Action on the Ground Program.
Good things come in small packages

Khamla Mott, Research Horticulturalist, Darwin

I first met Teagan Alexander at the Katherine Research Station where she works as a Technical Officer with the Plant Industries Development Group. Being employed full time hasn’t dampened her thirst for knowledge; she is continuing to study a Bachelor of Law part time. Her background and work experience is broad and varied, mostly within the pastoral sector. Teagan has worked as a jillaroo, as a self-employed contractor, a truck driver and owns her own small beef enterprise. She is a very hard worker and has an impressive ‘can do’ attitude. It was no surprise that I received a last minute invitation from her to attend a presentation at Parliament House in Darwin when Teagan was one of four finalists for the 2015 Northern Territory Rural Industries Research & Development Corporation (RIRDC) Rural Women’s Award, held on 25 March 2015.

Being Australia’s pre-eminent award for rural women, The RIRDC Rural Women’s Award identifies and supports emerging women leaders, who have the commitment, desire and leadership potential to make a greater contribution to rural communities and primary industries.

Teagan’s idea for her submission for the award came after hearing a colleague speak at a young industry representatives workshop, about the need for attracting and retaining young staff on stations in the pastoral industry, in particular jackaroo and jillaroo positions. That original idea morphed into Teagan’s application, titled ‘Jillaroos of today, leaders of tomorrow’. Her idea is to attract, retain and progress women in the pastoral industry sector by creating a forum where young female talent could learn from, and be inspired by, successful women already in the industry. By focussing on currently employed jillaroos, the forum would incorporate fun team building exercises and ice breaker activities that would push the attendees out of their comfort zones. Successful women in current executive positions in the pastoral industry, including head stockwomen would be present to showcase their skills and knowledge and share their stories.

It is a great idea and to hear Teagan speak so enthusiastically about her chosen topic, it is quite infectious. You could not help but cheer her on. The 2015 NT RIRDC Rural Women’s Award final four were of a very high calibre. Dr Sally Isberg took out the coveted award, along with the $10,000 bursary, for her passion for crocodile research. Craig Burns, the Managing Director of RIRDC and Alister Trier, the Chief Executive Officer of Department of Primary Industry and Fisheries were so impressed by Teagan’s proposal; they have since initiated a workplace plan that will see Teagan involved in a mentor and development program. To say that Teagan is excited about this opportunity and her future is an understatement.

Since missing out on the RIRDC Rural Women’s Award, Teagan has attended a Rural Leaders Boot Camp in Brisbane, run by The Right Mind. It’s here that Teagan has enhanced her communication skills by learning about her own communication style and how to use this more effectively to accommodate various personalities. She told me that ‘Communication is key. To be a leader you must have a clear goal and a clear reason. If people understand your passion, your drive, your reason, then it will transcend across your life.’

I have no doubt that it will. As a work colleague and as a friend, I’d like to wish Teagan all the best with her new workplace plan, completing her Bachelor of Law studies and continuing to improve the genetics of her herd by introducing double poll heifers. I will be avidly waiting to hear of her next success, which I’m sure will not be too far in the future.
Fairy Floss, Show Rides and Primary Industry

Alan Niscioli, Technical Officer, Darwin

Thousands attended the 2015 Royal Darwin Show this year which was held from 24-26 July. Most people came for the rides with names like Shockwave and Chaos which towered over side show alley. Amidst all the noise and colour, the Department of Primary Industry and Fisheries (DPIF) had a stall which was manned by about 40 staff from our six divisions, who generously volunteered to inform and entertain the crowds from 9.00 am to 9.00 pm over the three days.

Our stand in the Foskey Pavilion attracted positive comments from people of all ages with a range of exhibits showcasing our work. The Royal Agricultural Society of the Northern Territory Inc. awarded it second place for the Best Government Display category in the Stall Holders Competition.

The Plant Industries Development Group presented some of the equipment used for capturing and monitoring greenhouse gas emissions from agricultural soils and particulars of the Action on the Ground project. There was also information on exporting Australian mangoes to USA and information from the Plant Pathology and Entomology sections. Interactive displays were included for the kids and seeds and home-grown herbs were on show.
The Animal Welfare Branch had showgoers posing for selfies with animal masks and signs reading ‘#ProtectAnimals’ and ‘#PreventCruelty’ to promote animal welfare. There were also free frisbees for our furry friends.

The Adelaide River Grazing Company provided a sample of fodder pellets from the feed mill at Tortilla Flats near Adelaide River, which accompanied posters on Live Cattle Export.

The new Fisheries mobile app and the native fish aquarium were popular, as were fish measuring stickers and booklets on new fishing controls.

The Ord Development Unit presented information on the Ord expansion and proposed agricultural development whilst the Banana Freckle Response Unit was on hand to answer any questions about the eradication program.

After another successful year attending shows at Darwin, Fred’s Pass, Adelaide River, Katherine, Tennant Creek and Alice Springs, DPIF will soon be looking to continuing the efforts throughout 2016.
### Summary of current situation & trends - all districts – June 2015

**KEY**

- **Green** = low risk
- **Orange** = watch
- **Red** = high risk

**KEY**

- ↑ = increasing trend
- ↓ = decreasing trend
- ↔ = steady

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Darwin</th>
<th>Katherine</th>
<th>VRD</th>
<th>Sturt Plateau</th>
<th>Roper</th>
<th>Gulf</th>
<th>Barkly</th>
<th>Tennant Creek</th>
<th>Northern Alice Springs</th>
<th>Plenty</th>
<th>Southern Alice Springs</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014/15 total pasture growth</td>
<td>↔</td>
<td>↔</td>
<td>↔</td>
<td>↔</td>
<td>↔</td>
<td>↓ ↘</td>
<td>↑ ↗</td>
<td>↑ ↗</td>
<td>↓ ↘</td>
<td>↓ ↘</td>
<td>↓ ↘</td>
<td>Arrows indicate trend compared to the long-term median.</td>
</tr>
<tr>
<td>Current estimated standing biomass</td>
<td>↔</td>
<td>↔</td>
<td>↔</td>
<td>↔</td>
<td>↔</td>
<td>↓ ↘</td>
<td>↓ ↘</td>
<td>↔ ↻</td>
<td>↔ ↻</td>
<td>↔ ↻</td>
<td>↔ ↻</td>
<td>Arrows indicate trend since previous quarter.</td>
</tr>
<tr>
<td>Current seasonal outlook</td>
<td>↓ ↘</td>
<td>↓ ↘</td>
<td>↓ ↘</td>
<td>↓ ↘</td>
<td>↓ ↘</td>
<td>↓ ↘</td>
<td>↓ ↘</td>
<td>↓ ↘</td>
<td>↓ ↘</td>
<td>↓ ↘</td>
<td>↓ ↑</td>
<td>Arrows indicate the trend since previous quarter and taking into account the forecasted model predictions.</td>
</tr>
<tr>
<td>Current fire risk</td>
<td>↑ ↗</td>
<td>↑ ↗</td>
<td>↑ ↗</td>
<td>↑ ↗</td>
<td>↑ ↗</td>
<td>↑ ↗</td>
<td>↑ ↗</td>
<td>↑ ↗</td>
<td>↑ ↗</td>
<td>↔ ↻</td>
<td>↔ ↻</td>
<td>Arrows indicate the trend since previous quarter.</td>
</tr>
</tbody>
</table>
Northern Territory Seasonal Outlook – as at June 2015

Sourced from the Australian Bureau of Meteorology


The national outlook for June to August 2015 indicates that:

- **Drier** than normal across the top end of the NT
- **Wetter** than normal across the southern NT in July
- **Warmer** than normal days more likely across the northern NT
- **Warmer** than normal nights more likely across the entire NT

Both the Pacific and Indian oceans are influencing this outlook. The El Niño in the Pacific (which models indicate will strengthen) is having a drying impact on eastern Australia, while continued warmth in the Indian Ocean, coupled with the El Niño in the Pacific, is tending to enhance rainfall in southern WA.

### Seasonal Indicators

#### El Niño Southern Oscillation (ENSO)


Current outlook:

**Warmer & Drier**

**El Niño Alert**

![ENSO Alert Level](image)

**El Niño ALERT Level (El Niño status)**

**ENSO tracker raised to El Niño status on the 12 May 2015.**

The 2015 El Niño continues to develop. Most oceanic and atmospheric indicators are consistent with El Niño. International climate models surveyed by the Bureau of Meteorology suggest further warming of the tropical Pacific is likely, with sea surface temperatures forecast to remain above El Niño thresholds for the remainder of the year. Therefore, the ENSO Tracker status has been raised to El Niño status on the 12 May 2015.

El Niño is often associated with below-average winter–spring rainfall over eastern Australia and above-average daytime temperatures over the southern half of Australia.

#### Indian Ocean Dipole (IOD)


Current outlook:

**Neutral**

**Models suggest the IOD index will remain neutral throughout winter.**

The Indian Ocean Dipole (IOD) is currently neutral. Of the five international models that provide IOD outlooks, two suggest a positive IOD is likely later in 2015, with a third model just shy of thresholds.

A positive IOD is typically associated with reduced winter and spring rainfall over parts of southern and central Australia.
Live Cattle Exports via Darwin Port – JULY 2015

Please note: figures are for cattle exported through the Port of Darwin only; some NT cattle are exported through interstate ports.

<table>
<thead>
<tr>
<th>Destination</th>
<th>Export of ALL CATTLE (including interstate) from Darwin Port</th>
<th>Export of NT CATTLE from Darwin Port (estimate only)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2013 2014 Last year to 31/07/14 YTD to 31/07/15 July Last month Difference</td>
<td>2013 2014 Last year to 31/07/14 YTD to 31/07/15 July Last month Difference</td>
</tr>
<tr>
<td>Brunei</td>
<td>4,043 4,925 3,123 2,229 0 1,300 -1,300</td>
<td>4,043 4,925 3,123 842 0 842 -842</td>
</tr>
<tr>
<td>Philippines</td>
<td>22,403 16,080 6,582 13,083 0 2,156 -2,156</td>
<td>15,063 11,221 6,582 5,942 0 1,300 -1,300</td>
</tr>
<tr>
<td>Sabah</td>
<td>0 0 0 0 0 0 0</td>
<td>0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>Sarawak</td>
<td>800 0 0 300 0 0 0</td>
<td>800 0 0 0 0 0 0</td>
</tr>
<tr>
<td>Malaysia</td>
<td>14,952 22,309 13,297 10,806 7,530 1,806 5,724</td>
<td>12,094 15,708 11,297 7,039 4,937 1,170 3,767</td>
</tr>
<tr>
<td>Vietnam</td>
<td>35,396 64,461 36,498 67,368 18,718 14,038 4,680</td>
<td>32,806 41,391 28,298 40,558 12,273 9,097 3,176</td>
</tr>
<tr>
<td>Egypt</td>
<td>0 0 0 0 0 0 0</td>
<td>0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>Thailand</td>
<td>0 0 0 4,555 0 2,250 -2,250</td>
<td>0 0 0 2,555 0 1,458 -1,458</td>
</tr>
<tr>
<td>TOTAL</td>
<td>359,616 483,958 272,518 319,390 49,370 69,319 -28,356</td>
<td>308,784 324,477 182,923 170,003 26,858 44,919 -18,061</td>
</tr>
</tbody>
</table>

JULY at a glance

- 40,963 cattle through the Darwin Port during July; 28,356 less than last month and 46,872 more than at the same time last year.
- 26,858 NT cattle through the Darwin Port during July; 18,061 less than last month and 12,920 less than at the same time last year.

OTHER LIVESTOCK EXPORTS VIA DARWIN PORT
Includes NT and interstate stock

<table>
<thead>
<tr>
<th>Destination</th>
<th>100 0 300 0 0 0</th>
<th>0 0 0 0 0 0</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0 0 0 0 0 0</td>
<td>0 0 0 0 0 0</td>
</tr>
<tr>
<td></td>
<td>0 0 0 0 0 0</td>
<td>0 0 0 0 0 0</td>
</tr>
<tr>
<td></td>
<td>0 0 0 0 0 0</td>
<td>0 0 0 0 0 0</td>
</tr>
<tr>
<td></td>
<td>0 0 0 0 0 0</td>
<td>0 0 0 0 0 0</td>
</tr>
<tr>
<td></td>
<td>0 0 0 0 0 0</td>
<td>0 0 0 0 0 0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1,868 192 300 0 0 0</td>
<td>0 0 0 0 0 0</td>
</tr>
</tbody>
</table>

NT CATTLE MOVED INTERSTATE

<table>
<thead>
<tr>
<th>Destination</th>
<th>5,691</th>
<th>19,541</th>
<th>3,970</th>
<th>1,952</th>
<th>6,309</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL</td>
<td>37,463</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NATIONAL CATTLE PRICES

CURRENCY EXCHANGE RATES
www.oanda.com/currency/converter